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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BOYKIN, TERRESSA M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/532,029	Applicant(s) KRULIS ET AL.	
	Examiner Terressa M. Boykin	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

After further reviewing and searching, the following rejection has been set forth below:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim(s) as written remain unclear in that they may be interpreted in different manners. It is not clear whether there is a distinction as to whether the commingled plastic *is* the ethylene-propylene copolymer or styrene-butadiene block copolymer or whether the latter is merely added to the commingled plastic. Additionally, the fact that the plastic is recycled plastic is of no patentable consequence, since the plastic may be newly made from a continuous batch or used and regathered.

The claims *as written* cannot be allowed since they remain unclear and may be interpreted differently while remaining within the scope of the specification. It is noted, however, that limitations of the specification cannot be read into the claims. In view of such interpretations the following rejections has been made:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by USP

4212789 see abstract, cols. 1-8 and tables II and III.

As noted above, that the fact that the plastic is recycled plastic is of no consequence, since the polymer may be just newly made or used. Further, applicants have made no distinction in the claims as to whether the commingled plastic is the ethylene-propylene copolymer or styrene-butadiene block copolymer or whether the latter is added thereto.

USP 4212789 discloses process is described for preparation of impact polystyrenes from styrene and a polybutadiene rubber which has a vinyl isomer content in the range of 11 to 22 percent. The impact polystyrenes obtained by this process can be extruded into sheet with satisfactory elongation, and impact strength along with toughness and chemical resistance. The extruded sheet produced from impact polystyrene made by this process can be fabricated by deep draw thermoforming. The impact polystyrene can also be injection molded. The process employs mass polymerization under thermal conditions followed by free radical catalyzed suspension polymerization in the presence of small amounts of very active free radical terminators.

The performance of the resins during fabrication is affected by the particular polymerization recipe, conditions for polymerization of the recipe and the processing additives used with the resin. Typical operating conditions for extrusion are temperatures of about 400.degree.-500.degree. F., pressures of 1000-2500 psi, sheet gages of about 0.03 to 0.12 inches. The flow characteristics of the resins will be a combination of flow rate and melt viscosity so that the resin flows at an acceptable rate and produces sheet of uniform gage. This is indicated by the melt index and Vicat softening point. A feature of the resins is that the physical properties of recycled resin are substantially the same for a first, second, third or even fourth or more recycle.

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The above resins can be made if during the polymerization there are present small amounts, up to 10 ppm, of very active free radical terminators of the quinone and quinone-imine types. During the initial stage of polymerization of the styrene and the polybutadiene, these are effective where the polymerization is conducted under conditions that utilize primarily secondary free radicals rather than primary free radicals. In general the very active quinone and quinone-imine free radical terminators.

Alkyl or aryl substituted members have deep coloration, usually yellow or yellow/red. The effective concentration of the quinone and quinone-imine compounds is about 0.1-10 ppm by weight of the polybutadiene rubber. While each may be used separately, combinations of the two types are also effective.

The amino aromatic compound is preferably a substituted phenylene diamine. Exemplary compounds are:

N,N'-Bis(1,4-dimethylpentyl) phenylene diamine

N,N'-Bis(1-ethyl-3-methylpentyl) p phenylene diamine

N,N'-Bis(1-methylheptyl) phenylene diamine

N-sec-Butyl-N'-phenyl-p phenylene diamine

N-Cyclohexyl-N'-phenyl-p phenylene diamine

Diarylarylenediamines, mixed phenylene diamine

Diaryl-p phenylene diamine

N,N(-Dicyclohexyl-p phenylene diamine

N-(1,3-Dimethylbutyl)-N'-phenyl-p phenylene diamine

N,N'-Di-2-naphthyl-p phenylene diamine

N,N'-Diphenyl-p phenylene diamine

N-Isopropyl-N'-phenyl-p phenylene diamine

N-(1-methylpentyl)-N'-phenyl-p phenylene diamine

N-Phenyl-N'-2-octyl-p phenylene diamine

While the polybutadiene rubber will usually be the sole rubbery material used in the polymerization with styrene, in some instances it is useful to have other rubbers as well.

The resin compositions also have utility in the same manner as conventional impact polystyrene resins. These compositions may be blended with crystal polystyrene resins to form medium impact polystyrene resins. Likewise, the resins may be colored with

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pigments. In addition to deep draw thermoforming and injection molding of thin-walled articles, the resins compositions may be co-extruded with other plastics materials. Foamed resin articles may be made by foaming of molten resin with injection of expansion agents or by foaming particles of the resin composition that contain expansion agents.

The reference states that while the polybutadiene rubber will usually be the sole rubbery material used in the polymerization with styrene; in some instances it is useful to have other rubbers as well.

The polymerized styrene matrix will have a number average molecular weight in the range of about 70,000 to 120,000. The percent insolubles, including crosslinked polybutadiene, and graft copolymer between styrene and polybutadiene and occluded polystyrene will be in the range of 10 to 20%. The percentage grafting will be in the range of 10 to 20%.

The polybutadiene rubber may be formed by polymerization of butadiene with complexed organo lithium catalysts in the presence of promoters and hydrocarbon solvents. Typically, complexed butyl lithium compounds are used for the polymerizations which yield a polybutadiene rubber having 11 to 22% vinyl content.. The corresponding number average molecular weights are in the range of 60,000 to 110,000.

Thus, as noted previously, the reference discloses a process is described for preparation of impact polystyrenes from styrene and a polybutadiene rubber which has vinyl isomer content in the range of 11 to 22 percent. The impact polystyrenes obtained by this process can be extruded into sheet with satisfactory elongation, tensile strength and impact strength along with melt toughness and chemical resistance. The extruded sheet produced from impact polystyrene made by this process can be fabricated by deep draw thermoforming. The impact polystyrene can also be injection molded. The process employs mass polymerization under thermal conditions followed by free radical catalyzed suspension polymerization in the presence of small amounts of very active free radical terminators.

The reference discloses a process for preparing high impact resins via compatibilizing moieties resulting in a product having substantially increased tensile strength prepared from the same components as claimed by applicants. Note applicant(s) containing is open language and does not exclude those additional moieties

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used or disclosed herein such as quinone (or free radical terminators). Any properties or characteristics inherent in the prior art, e.g. although unobserved or detected by the reference, would still anticipate the claimed invention. Note *In re Swinehart*, 169 USPQ 226. "It is elementary that the mere recitation of a newly discovered...property, inherently possessed by things in the prior art, does not cause claim drawn to those things to distinguish over the prior art". In view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). In view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Such as an extruder being specifically mentioned as a type of extruder, i.e. multi-screw etc. The range of percentages and the average molecular weights fall within and/or overlap the claimed invention.

However, in the interest of expediently continuing prosecution, in the event that applicants' arguments in the response adequately provide evidence or a reasonable presumption that the above 102 rejection is considered not to have sufficient specificity according to MPEP 2131.03:

2131.03 Anticipation of Ranges**I. A SPECIFIC EXAMPLE IN THE PRIOR ART WHICH IS WITHIN A CLAIMED RANGE ANTICIPATES THE RANGE**

"[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if *one* of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (citing *In re Petering*, 301 F.2d 676, 682, 133 USPQ 275, 280 (CCPA 1962)) (emphasis in original) (Claims to titanium (Ti) alloy with 0.6-0.9% nickel (Ni) and 0.2-0.4% molybdenum (Mo) were held anticipated by a graph in a Russian article on Ti-Mo-Ni alloys because the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions.).

II. PRIOR ART WHICH TEACHES A RANGE OVERLAPPING OR TOUCHING THE CLAIMED RANGE ANTICIPATES IF THE PRIOR ART RANGE DISCLOSES THE CLAIMED RANGE WITH "SUFFICIENT SPECIFICITY"

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When the prior art discloses a range which touches or overlaps the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, and the reference teaches a broad range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. See, e.g., *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 999, 78 USPQ2d 1417, 1423 (Fed. Cir. 2006) wherein the court held that a reference temperature range of 100-500 degrees C did not describe the claimed range of 330-450 degrees C with sufficient specificity to be anticipatory. Further, while there was a slight overlap between the reference's preferred range (150-350 degrees C) and the claimed range, that overlap was not sufficient for anticipation. "[T]he disclosure of a range is no more a disclosure of the end points of the range than it is each of the intermediate points." *Id.* at 1000, 78 USPQ2d at 1424. Any evidence of unexpected results within the narrow range may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching. See *MPEP* § 2131.02. A 35 U.S.C. 102/ 103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." The examiner must, in this case, provide reasons for anticipation as well as a *reasoned< statement regarding obviousness. *Ex parte Lee*, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board). For a discussion of the obviousness of ranges see *MPEP* § 2143.05.

III. PRIOR ART WHICH TEACHES A VALUE OR RANGE THAT IS VERY CLOSE TO, BUT DOES NOT OVERLAP OR TOUCH, THE CLAIMED RANGE DOES NOT ANTICIPATE THE CLAIMED RANGE

"[A]nticipation under § 102 can be found only when the reference discloses exactly what is claimed and that where there are differences between the reference disclosure and the claim, the rejection must be based on § 103 which takes differences into account." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Claims to titanium (Ti) alloy with 0.8% nickel (Ni) and 0.3% molybdenum (Mo) were not anticipated by, although they were held obvious over, a graph in a Russian article on Ti-Mo-Ni alloys in which the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni.).

, the following rejection under 35 USC § 103
is as follows:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **by**
USP 4212789 see abstract, cols. 1-8 and tables II and III.

The **USP 4212789** reference discloses a process for preparing high impact resins via compatibilizing moieties resulting in substantially increased tensile strength prepared from the same components as claimed by applicants except for the particular range or points as claimed. However, it would have been obvious to one of ordinary skill in the art to envisage the limitations or range as claimed since such selection overlaps or falls within that which is disclosed since it is well-established that merely selecting proportions and ranges is not patentable absent a showing of criticality. *In re Becket*, 33 U.S.P.Q. 33 (C.C.P.A. 1937). *In re Russell*, 439 F.2d 1228, 169 U.S.P.Q. 426 (C.C.P.A. 1971). Generally, it is prima facie obvious to determine workable or optimal values within a prior art disclosure through the application of routine experimentation. See In re Aller, 105 USPQ 233, 235 (CCPA 1955); In re Boesch, 205 USPQ 215 (CCPA 1980); and In re Peterson, 315 F.3d 1325 (CA Fed 2003). Note applicant(s) containing is open language and does not exclude those additional moieties used or disclosed herein such as quinone (or free radical terminators

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terressa M. Boykin whose telephone number is 571 272-1069. The Examiner can normally be reached Monday- Friday 9:30-6:00 (work at home).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272-1078.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Terressa M. Boykin/

Primary Examiner, Art Unit 1796